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Deposited: March 4, 2002

3-26-02
Ruth Montalvo
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#15/
Appeal
Brief

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JG-NG-4893/500633.20017

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Yusuke Nakazawa, et al.

Group Art Unit: 2854

Serial No.: 09/396,238

Examiner: S. Funk

Filing Date: September 15, 1999

Customer No.: 026418

For: METHOD OF LITHOGRAPHIC PRINTING

Commissioner for Patents
Washington, D.C. 20231

BRIEF ON APPEAL

Sir:

This Brief is submitted in support of the Appeal lodged September 4, 2001.

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1. REAL PARTY IN INTEREST

The real party in interest in the above-identified application is the Assignee, Fuji Photo Film co, Ltd. Of Kanagawa, Japan located at 210 Nakanuma, Minami Ashigara-shi, Kanagawa, Japan,

2. RELATED APPEALS AND INTERFERENCES

No other appeals or interference are known to Appellant, the Appellant's legal representative, or Assignee which will directly affect, will be directly affected by or have a bearing on the Board's decision in the Appeal.

3. STATUS OF ALL CLAIMS

The above-identified application was filed on September 15, 1999 and the original filing contains 17 claims. In a response to an Office Action mailed November 13, 2000, Claims 1, 2, 4-7, 9, 11 and 13 -17 were amended to address certain informalities raised by the Examiner in the outstanding Office Action. None of these amendments were made to, in any way, avoid prior art.

Claims 1-17 remain in this application and the rejections thereof are hereby appealed.

4. STATUS OF AMENDMENTS

All Amendments have been entered. A Response dated August 6, 2001 was filed subsequent to the Final Rejection. No amendments were made in this response and the Examiner indicated in an Advisory Action mailed August 15, 2001, that the arguments had been considered but that the Final Rejection of claims 1-17 stood.

5. SUMMARY OF THE INVENTION

The present invention is directed to a method for lithographic printing in which an oil-based ink is employed for plate making, the plate is prepared using an inkjet and images are provided which have excellent imaging quality both on lithographic printing plates and on prints. The conventional procedure for lithographic printing includes the formation of ink receptive areas and ink repellent areas on the surface of a printing plate in accordance with an original image. Printing ink adheres to the ink receptive areas. Ordinarily, hydrophilic and oleophilic or ink repellent areas are formed image wide on the surface of the plate and the hydrophilic areas are rendered ink repellent by applying dampening water thereto (page 1, lines 13-18).

Recent methods for production of digital image formation directly onto a printing plate precursor have been proposed concordant with the improvement in digital recording technology and an effort to provide a more efficient printing process. However, such plate making methods usually include treatments with an alkaline developer to remove the non-image areas by dissolution after image recordation by either photon or heat mode

using a laser beam. This results in a discharge of an alkaline waste liquor which is undesirable from an environmental consideration.(page 2, lines 3-9).

In order to perform the printing process more efficiently, a system wherein the image recording is conducted in a printing press is known. However, this requires a large expensive apparatus when the laser beam is used (page 2, lines 10-14).

It is also been known to use a printing method wherein a plate drum having hydrophilic or oleophilic surface is placed in a printing press instead of on a conventional plate cylinder. Appropriate oleophilic or hydrophilic images are formed on the plate drum by means of an ink jet recording method and after lithographic printing is carried out, the images are removed to clean the plate drum. This method has exhibited a problem in that the printing durability of the plate drum is inconsistent with the removal of the images from the plate. Moreover, since a resin solution is employed as an ink, the resin tends to deposit in the nozzle due to evaporation of the solvent so that the ejection of the ink becomes unstable and it is difficult to obtain good image quality.

The present inventors have discovered a method which avoids many of these deficiencies of the prior art. In particular, the present invention utilizes a lithographic printing method which includes a formation of an image based on signals of the image data produced directly onto a printing plate precursor mounted on a plate cylinder of a printing press. This produces a printing plate. Lithographic printing is then carried out. The formation of the image on the printing plate precursor is carried out by an inkjet recording method in which an oil-based ink is ejected onto the precursor utilizing an electrostatic field. Accordingly, with the present invention, both production of the plate and the printing are carried out together (page 3, lines 14-19).

More particularly the process of the present invention is shown in Fig. 1, wherein a lithographic printing plate having a plate cylinder 11, a blanket cylinder 12 and an

impression cylinder 13 is provided. The blanket cylinder 12 for transfer use is arranged so that is brought into pressure contact with the plate cylinder at least during the course of the printing operation and is further brought into pressure contact with the impression cylinder 13 so that the printing ink images transferred onto the blanket cylinder are further transformed to printing paper P (page 8, lines 6-12).

The printing press 1 has an inkjet recording device 2 which ejects an oil based ink onto the printing plate precursor 9 in accordance with image data transmitted from an image data arithmetic and control unit of image data 21 and thereby forms a printing area on the printing plate precursor (page 8, line 24-page 9, line 2).

The ejection head is scanned by rotating the plate cylinder 11 and may have multiple or a full line head with a plurality of ejector parts (page 12, line 6-8). The ejection is controlled by the control unit of image data 21 and the oil based is ejected out from the head with a dot area percentage as determined by the operations performed in unit 21 (page 12, lines 12-14).

Thereafter, the printing process is carried out by transferring the form printing image onto blanket cylinder 12 rotating in concert with plate cylinder 11 and the printing ink image on the blanket cylinder is transferred to printing paper P which passes between blanket cylinder 12 and impression cylinder 13 to finish the printing (page 14, lines 9-15).

The present invention provides for high quality printing with a highly efficient and relatively uncomplicated apparatus.

6. STATEMENT OF ISSUES PRESENTED

1. Whether Claims 1,2 and 5-7 are unpatentable under 35 U.S.C. 103 (a) over Kato, et al (JP10-204, 355) (hereinafter JP '355) in view of Love III (US Patent No. 4,718,340), (hereinafter, Love '340).

2. Whether Claim 3 is unpatentable under 35 U.S.C. 103 (a) as being unpatentable over JP '355 in view of Love '340 and further in view of Adler European Patent 641,648 (hereinafter Adler '648).

3. Whether Claim 4 is unpatentable under 35 U.S.C. §103(a) over JP '355 in view of Love '340 taken further in view of Masaaki Japanese Patent 58-147,373 (hereinafter, Masaaki '373).

4. Whether Claims 8-14 are unpatentable under 35 U.S.C. §103(a) over JP '355 in view of Love '340 and further in view of Arway, et al US patent No. 4,55,712 (hereinafter Arway, et al '712).

5. Whether Claim 15 is unpatentable under 35 U.S.C. §103(a) over JP '355 in view of Love '340 and further in view of Ikkatai US patent No. 5,363,132 (hereinafter Ikkatai '132).

6. Whether Claim 16 is unpatentable under 35 U.S.C. §103(a) over JP '355 in view of Love '340 and further in view of Gasparrini US patent No. 5,322,015 (hereinafter Gasparrini '015).

7. Whether Claims 12-17 are unpatentable under 35 U.S.C. §103(a) over JP '355 in view of Love '340 and further in view of Miura, et al. U.S. Patent No. 5,988,782 (hereinafter Miura, et al '782).

7. GROUPING OF CLAIMS

Claims 1-17 stand or fall together.

8. ARGUMENT

A. Claims 1,2 and 5-7 are not patentable over the combination of JP '355 and Love '340.

In the Final Office Action, the Examiner has relied on JP '355 as teaching the method recited in the present claims and in particular claim 1, with the exception of the step of imaging the printing plate "in press". The examiner relies on the English abstract and figures 1-3 of JP '355.

However, a review of the disclosure of the JP '355 abstract and the clear indication in the three simplified figures shows this reference contains absolutely no relationship to the invention presently claimed. In particular, JP '355 is directed to an ink composition that exhibits excellent storage stability and reproducibility of images for repeated continuous plate production. The abstract says nothing more. The only detail provided in the abstract is a description of the preparation of the composition and a statement that the resin particles are preferably positive or negative electroscopic particles.

The drawings show only, in (Fig. 1), a computer attached to a printer which presumably is an ink-jet type printer, (in Fig. 2) an inkjet nozzle indicated at 10 with a roller

and a substrate thereon and onto which the inkjet nozzle is directing ink and (Fig. 3) then a cross-sectional view of the nozzle. In Derwent abstract (copy enclosed), It is described that the use of the inventive inkjet oil ink composition has as its use, the preparation of original plates for lithographic printing having a picture image excepting layer on a water-resistant substrate by means of inkjet printing. Nothing more is disclosed as to exactly how the image is prepared or by what means the image is created i.e., exactly how the inkjet is directed toward the plate to produce the image, or when it's printed..

Consequently, it is clear that the disclosure of the reference as relied on by the Examiner says absolutely nothing about the present invention as claimed. Rather, JP '355 discloses only the plate-making and lithographic printing being carried out by using a separate printing press which is entirely different from the present invention. Thus, as disclosed in JP '355, an offset printing plate using the oil-based ink for ink-jet recording system is described at paragraphs [0063] to [0083] and this is shown in the drawings. In particular, the reference discloses that by using the device shown in Fig. 1 to carry out the preparation of the offset printing plate based on the information on the image to be formed, droplets of ink are sprayed from the head 10 of the ink-jet recording device 1 onto the master 2 to prepared the plate-making master in which the image has been formed. Subsequently, a densitizing treatment is carried out to prepare the printing plate.. Specifically, as described at page 7, paragraphs [0065 – 0067], the inkjet apparatus is an apparatus used to obtain a print-making master, that is, a plate-making printing plate is equivalent to a print plate precursor. Also described at page 7, paragraph [0068-0071] is the fact that the image is formed using this inkjet apparatus by directly ejecting the ink onto the master from an inkjet head.

It is further clearly described at page 8 paragraph [0083] of JP '355 that offset printing can be achieved by using dampening water, i.e, a fountain solution, using this master, i.e, the printing plate which carries the image.

The off-set printing is carried out using a printing press which is clearly different from the above ink-jet apparatus. This is because in the offset printing by using the dampening water, the ink is transferred to a paper via a blanket to form the image. In an inkjet apparatus, the present invention on the other hand, dampening water is not used. That is, in the inkjet apparatus shown in Fig. 1, the image is directly formed onto the master without using the blanket.

It is further described at page 10, paragraphs [0100 - 0101] of JP '355 that passing through a plate subjected to plate-making i.e., a printing plate obtained by using the inkjet apparatus, the printing is carried out using the invention for offset printing. The reference also provides that in the offset printing using the thus obtained printing plate, the printing of about 10,000 sheets can be performed.

The examples of the reference (paragraphs [00978 - 0137]) describe the preparation of a printing plate and the printing. Paragraph 0101 states that the printing is carried out using the thus obtained printing plate by a automatic printing press (AM-2850). Clearly, the reference only contemplates and discloses the preparation of a printing plate and a separate printing press. Moreover, the reference is devoid of any information which might suggest to the skilled artisan that the preparation of the printing plate and the printing are carried out using the inkjet on the printing press as required by the present claims.

The Examiner recognizes the deficiencies of JP '355 and thus relies on Love '340 as teaching the desirability of imaging a printing plate in press. In particular, the Examiner refers to columns 2 and 3 as well as the paragraph bridging columns 11 and 12 and column 21 lines 13-37 of Love. '340. However, a review of columns 2 and 3 of Love '340 show only that it describes a litany of techniques for establishing hydrophilic and hydrophobic areas on a printing plate (column 1, lines 55-57). The deficiencies of these methods and the lithographic type plates produced by the techniques are numerically listed in the paragraph bridging pages columns 2 and 3. Thus contrary to the Examiner's assertion, there is nothing at this point which in any way teaches the desirability or even the possibility of imaging a printing plate in press.

In the paragraph bridging columns 11 and 12 the reference only describes the use of various energy means to remove portions of a hydrophobic layer material from the surface of roll 10. Thus, as noted in fig 1, a stylus array is used and it points out that other electrode configurations may be used.

However, this has nothing to do with the use of an inkjet printing stylus but rather is directed only to the removal of portions of hydrophobic layer material which is not blocked by a mask or stencil (column 12, lines 20-24). This has nothing to do with imaging a printing plate in press.

Finally, at column 21, lines 13-37 the reference discloses an alternative method for generating plates which results in the placement of a hydrophobic layer material on the plate in an image-related predetermined configuration by selectively applying the hydrophobic layer material in an appropriate configuration rather than selectively removing the material

from a uniform layer. It is then pointed out that the method may be implemented using for example, in ink-jet printing assembly and other means which are supplied with a source of hydrophobic layer material of appropriate viscosity rather than ink. Thus, this does not relate to the use of an ink jet to apply ink to a plate, but rather only to use an inkjet to apply a source for a hydrophobic layer material. This has nothing to do with the present invention as claimed. Indeed, it has nothing to do with ejecting an oil-based ink to form an image on the printing plate precursor.

Furthermore, in Love '340, the image is directly formed on the plate cylinder surface of the printing press. Furthermore, the Love 340 reference relates to a stencil printing press which is completely different from the lithographic printing press recited in the present process claims. In stencil printing, the plate is produced by using the mesh as the plate cylinder and by plugging the pores or holes of the mesh. This also presents problems since the image quality is determined by the pores of the mesh and the resulting image quality can be poor. (See column 23, lines 42 – column 24, line 64)

In contrast, in lithographic printing in which the present invention is concerned, the plate is produced by forming a hydrophobic image on a hydrophilic plate. Because of this, the printing matter has a high image quality which is an important object of lithographic printing. It is thus important as provided by the present invention that a high quality can be prepared.

In addition, using such means as lasers for optical image formation is expensive and because of this cost, it has significant drawbacks. This also is essentially different from the on-image drawing as recited in the present claims.

The present invention has achieved for the first time, the use of a specific ink-jet in which the image-drawing capability makes it possible to obtain a high image quality by the ejection of a concentrated ink as the image forming means. This is a relatively inexpensive, simple and compact procedure. Furthermore, the conditions required for the lithographic printing press producing such a high image quality are satisfied by the specific ink-jet recited in the present claims.

Nothing in the love'340 patent provides any information to the skilled artisan to suggest that they should modify the JP '355 apparatus to achieve imaging the printing plate in press. Indeed, one would have to deviate from the specific teaching of JP '355, with respect to the separation of the plate making and printing. Love '340 fails to provide this suggestion and consequently, the attempted combination of these references by the Examiner is improper. The only possible basis for the combination of the references is provided by the disclosure of the present application and, of course, this is not available as a reference. There is simply no linking disclosure between the two references that makes the obviousness rejection thereon sustainable and this rejection should not be sustained.

B. The remaining claims are all patentable over the combination of JP '355 and Love '340 with the various respective secondary citation. (Issues 2-7)

All of the remaining rejections include the combination of the JP '355 and Love '340 disclosures. Since these two references fail to render the claims on appeal obvious, and the subsequent references relied on are directed only to various specific add-ons as defined in certain dependent claims, it is clear that they do not make the combination of JP

'355 and Love '340 more relevant to the present invention and accordingly, these rejections are also unsustainable.

9. CONCLUSION

In view of the foregoing, it is submitted that the final rejection of the examiner based on the art of record is improper and this board is requested not to sustain the rejection.

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APPENDIX

9. CLAIMS ON APPEAL

1. (Amended) A method of lithographic printing comprising forming an image based on signals of image data directly on a printing page precursor mounted on a plate cylinder of a printing press, thereby preparing a printing plate, and conducting lithographic printing, wherein the step of forming the image on the printing plate precursor is carried out by an ink jet recording method in which oil-based ink is ejected utilizing an electrostatic field.
2. (Amended) The method of lithographic printing as claimed in claim 1, wherein said oil-based ink is a dispersion comprising hydrophobic resin particles which are solid at least at a temperature of 15 to 35°C dispersed in a nonaqueous solvent having an electric resistance of at least $10^9 \Omega\text{cm}$ and a dielectric constant of 3.5 or less.
4. (Amended) The method of lithographic printing as claimed in claim 1, further comprising using means for removing dust which is present on the surface of the printing plate precursor before and/or during the step of forming the image on the printing plate precursor.
5. (Amended) The method of lithographic printing as claimed in claim 1, wherein rotation of said plate cylinder on which the printing plate precursor is mounted affects main scanning during the step of forming the image on the printing plate precursor.

6. (Amended) The method of lithographic printing as claimed in claim 5, wherein the step of forming the image on the printing plate precursor by the ink jet recording method is carried out using an ink jet recording device equipped with a single or multiple head, and the head is slid in the axis direction of the plate cylinder to accomplish the sub-scanning during the step of forming the image on the printing plate precursor.

7. (Amended) The method of lithographic printing as claimed in claim 6, wherein said ink jet recording device is equipped with a full line head having a length almost the same as the length of the plate cylinder.

9. (Amended) The method of lithographic printing as claimed in claim 6, wherein the ink jet recording device is further equipped with a combination of means for supplying the oil-based ink to the head and means for recovering the oil-based ink from the head to perform an ink circulation.

11. (Amended) The method of lithographic printing as claimed in claim 7, wherein the ink jet recording device is further equipped with a combination of means for supplying the oil-based ink to the head and means for recovering the oil-based ink from the head to perform an ink circulation.

13. (Amended) The method of lithographic printing as claimed in claim 12, wherein said ink tank further has means for controlling ink temperature inside the ink tank.

14. (Amended) The method of lithographic printing as claimed in claim 12, wherein said ink tank further has means for controlling ink concentration inside the ink tank.

15. (Amended) The method of lithographic printing as claimed in claim 1, wherein the ink jet recording method is carried out using an ink jet recording device equipped with a single or multiple head and the head is installed so that it is kept close to the plate cylinder during the step of forming the image on the printing plate precursor and at other times, it is kept away from the plate cylinder by means for moving the head near or away.

16. (Amended) The method of lithographic printing as claimed in claim 1, further comprising using means for removing paper dust generated during the lithographic printing.

17. (Amended) The method of lithographic printing as claimed in claim 1, wherein the ink jet recording method is carried out using an ink jet recording device equipped with a single or multiple head and the method further comprises using means for cleaning the head in the ink jet recording method at least at the completion of plate making.